Melrose High trio named top team in 20th New Mexico Supercomputing Challenge

April 27, 2010

Student research project modeled behavior of wildfire

LOS ALAMOS, New Mexico, April 27, 2010—A trio of students from Melrose High School captured the top prize in the 20th New Mexico Supercomputing Challenge hosted by Los Alamos National Laboratory. The report "Control and Spread of Wildfires II" by brothers Richard and Randall Rush and Kyle Jacobs built upon previous research by the team and added a new variable, topography, to the computer model as a factor contributing to the behavior of wildfire.

Each student receives a check for $1,000. The team also received the Crowd Favorite Award—and $100—as selected by student participants, teachers, and mentors.

Two Los Alamos High School teams captured second and third place. "The Holy Grail of Adam's Ale" received second place, and "To Kill a Flocking Bird" captured the third-place prize.

The Supercomputing Challenge is open to any New Mexico high-school or middle-school student. More than 250 students representing 70 teams from schools around the state spent the school year researching scientific problems, developing sophisticated computer programs, and learning about computer science with mentors from the state's national laboratories and other organizations.

The goal of the yearlong event is to teach teams of middle- and high-school students how to use powerful computers to analyze, model, and solve real-world problems. Participating students improve their understanding of technology by developing skills in scientific inquiry, modeling, computing, communications, and teamwork.

The Los Alamos High School team of Gabriel Montoya, Rachel Robey, Orli Shlachter, and Orion Staples each received $500 for the second-place research project, which used geostatistics, a branch of applied statistics, to find aquifers and other groundwater sources. Robey and Montoya took third place in last year's challenge for their project on energy efficiency through smart wall design.

The team also received the Best Technical Poster Award. Their poster will be used on the front cover for the 2009-10 final reports book, which will be published this fall during the kickoff for the 2010-11 Supercomputing Challenge. The team also received the

Visualization Award from New Mexico Institute of Mining and Technology. The award comes with $150.

The third-place team consists of students Peter Ahrens, Stephanie Djidjev, Vickie Wang, and Mei Lui. Their project explored techniques used to optimize the parameters of flocking, a phenomenon frequently exhibited by birds during migration, animals such as elephants who flock to protect smaller, weaker members, and in humans. They each receive $250.

The quartet of Los Alamos High students also received the Best Internet Research Prize—and a $500 cash award—from the Council for Higher Education Computing/ Communication Services. They also garnered the New Mexico Network for Women in Science and Engineering award for best project with a majority of women team members, and shared the Visualization Award with the second-place team from Los Alamos High. The award comes with $150.

Students presented their research to a team of volunteer judges on Monday at the Lab's J. Robert Oppenheimer Study Center and discussed poster displays of their computing projects. They also toured the Laboratory's supercomputing centers and heard talks and saw demonstrations by Laboratory researchers.

A total of $62,700 in individual scholarships—$50,000 from the Laboratory's Computer, Computational, and Statistical Sciences Division—were awarded on Tuesday at Los Alamos.

To read all the student reports, go to http://www.challenge.nm.org/finalreports/.

The Supercomputing Challenge is sponsored by Los Alamos and Sandia national laboratories and the state of New Mexico.

Educational partners include The Center for Connected Learning, CHECS, Eastern New Mexico University, High Plains Regional Cooperative, MIT StarLogo, New Mexico Computing Applications Center, New Mexico Highlands University, New Mexico Institute of Mining and Technology, Northern New Mexico College, New Mexico Public Education Department, New Mexico State University, San Juan College, Santa Fe Community College, Santa Fe Institute, and the University of New Mexico.

Lockheed Martin, Los Alamos National Laboratory Foundation, The Math Works, Synergy Group, Vandyke Software Inc., and Wolfram Research, Inc. are "Gold" commercial partners. "Silver" commercial partners are Abba Technologies, Google RISE, Gulfstream Group and bigbyte.cc, Intel Corporation, Los Alamos National Security, LLC, One Connect IP, Technology Integration Group, and ZiaNet.

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